said [disk shaped] generally disk-shaped section defining threaded holes [in one said generally planar surface] proximate said outer periphery of said [disk shaped] disk-shaped section.

Please add the following claims:

23. The target of claim 9 wherein said generally disk-shaped section defines threaded holes in said at least one radially-inward step, proximate said outer periphery of said disk-shaped section.

24. The target of claim 9 wherein said generally disk-shaped section has two radially-inward steps proximate said outer periphery.

Remarks

Claims 9-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Zejda (U.S. Pat. 5,112,467) in view of Fujitsu LTD (Japan 59-179784), Hitachi (Japan 59-170269) and Inoue (U.S. Pat. 5,244,556).

Claim 9, from which claims 10-13 and 23-24 depend, has been amended to recite at least one radially-inward step proximate the outer periphery of the target, as disclosed in the specification of the present application and discussed below.

Standard commercial plasma sputtering devices include a magnetron positioned behind the target to trap and shape plasma for sputtering, thereby ensuring a sufficiently high deposition rate and a uniform deposition of plasma from the target onto the substrate. See, for example, U.S. Patent No. 5,496,455, which

shows a ring-shaped magnet positioned behind a target/backing plate assembly that is shaped similarly to the target/adapter assembly disclosed in the present application.

The radially-inward step proximate the outer periphery of the target of the present invention is advantageous because it enables a magnetron positioned behind the target to span the entire sputtering surface of the target, such that the entire sputtering surface of the target is utilized, as explained in greater detail below.

As illustrated in Fig. 2, the radially-inward step 47 is located proximate the outer periphery of the target 30 and is positioned to mate with the inner radial flange 45 of the adapter 32. Target 30 includes, at various spaced locations along radial step 47, threaded apertures 43 (Fig. 4). Adapter 32 includes, in inner flange 45, apertures 44 at spaced locations corresponding to apertures 43 in target 30 (Fig. 3). Apertures 43 and 44 are sized to receive 8-32 bolts such as 46 (Fig. 2), thereby securing target 30 to adapter 32.

As best seen in Fig. 2, the presence of radially-inward step 47 enables the head of a bolt such as 46 to be positioned flush with the rear surface (i.e., the surface opposite the sputtering surface 50) of the target 30 and the rear surface of inner flange 45 of the adapter 32. This, in turn, enables a magnetron positioned behind the target 30 to span the entire sputtering surface 50 of the target, such that the entire sputtering surface 50 of the target 30 is utilized.

The targets shown by Zejda and Fugitsu, Hitachi and Inoue do not have a radially-inward step on their outer periphery, and as a result, those targets cannot be used with a magnetron spanning the entire sputtering surface of the targets, which reduces the effective sputtering area.

In view of the foregoing claim amendments and the remarks given herein, Applicant submits that this application is now allowable over the prior art cited by the Examiner. Applicant thus requests early transmission of a Notice of Allowability.

If any charges or credits are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

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